

ARE THERE ANY FEATURES IN CLINICAL PRESENTATION OF ACUTE CORONARY SYNDROME IN FORMER ATHLETES?

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Background and aims. Estimated cardio-respiratory fitness was inversely associated with risk of acute myocardial infarction event among women but not in men [Shigdel R, Dalen H, Sui X, Lavie CJ, Wisloff U, Ernstsen L. *Cardiorespiratory Fitness and the Risk of First Acute Myocardial Infarction: The HUNT Study. J Am Heart Assoc.* 2019 May 7;8(9):e010293. doi: 10.1161/JAHA.118.010293].

Prestroke physical activity could influence acute stroke severity [Reinholdsson M, Palstam A, Sunnerhagen KS. *Neurology.* 2018 Oct 16;91(16):e1461-e1467. doi: 10.1212/WNL.0000000000006354].

But little is known about features in clinical presentation of acute coronary syndrome (ACS) in the middle-aged and older adults had engaged in moderate sport activity in the youth.

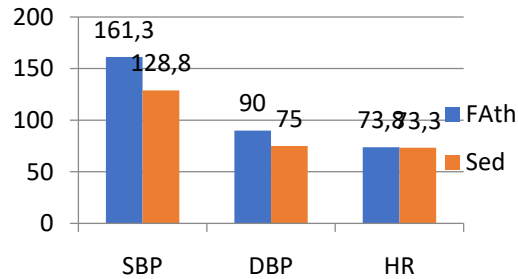


Fig. Heart rate and systolic and diastolic blood pressure in females – former athletes and females without sports history.

SBP – systolic blood pressure, mm Hg; DBP – diastolic blood pressure, mm Hg; HR – heart rate, bpm

Gender	Total cholesterol, mmol/L	Triglycerides, mmol/L	LDL, mmol/L	HDL, mmol/L
Females, former athletes	6.53 ±0.56	1.90 ±0.30	3.90 ±0.23	0.99 ±0.09
Females, sedentary	6.80 ±2.10	2.59 ±0.93	2.87 ±0.28*	1.17 ±0.02
Males, former athletes	4.64 ±0.38	1.64 ±0.35	2.99 ±0.19	1.20 ±0.02
Males, sedentary	5.17 ±0.54	1.48 ±0.31	3.20 ±0.28	1.09 ±0.07

Table 1. Lipid profile in former athletes and sedentary patients, * - p<0.05

Methods. We studied 33 patients (8 females) admitted to noninvasive cardiology department with ACS. 12 males (M±m; 64.3±4.0 (43-88) yrs) and 4 females (69.2±4.8 (60-81) yrs) were former recreational athletes, 13 males (63.5±3.7 yrs) and 4 females (69.3±4.3 yrs) admitted in the same day/week served as case-control.

Results. Former female-athletes had higher systolic (p=0.023) and diastolic (p=0.015) blood pressure (BP) (table 1) at admission and higher low density lipoprotein cholesterol (3.9±0.2 vs 2.8±0.3 mmol/L; p=0.015; table 2) , 2 females were obese.

No difference was found in enzymes, glucose, electrolytes, ECG and EchoCG parameters (table 2). Left ventricular (LV) contractility had tendency to be better (p=0.07). Only 1 female was discharged with non ST-elevation myocardial infarction (non-STEMI). In males BMI (28.1±1.7 and 26.8±1.0 kg/m²), heart rate, blood pressure, Killip class and comorbidities did not differ, except low back pain was significantly higher in former athletes.

Gender	LA, mm	LVEDD, mm	LVPW, mm	IVS, mm	EF, %
Females, former athletes	39.5 ±1.1	48.5 ±0.9	11.9 ±0.5	12.4 ±0.6	65.0 ±2.2
Females, sedentary	43.0 ±2.0	52.3 ±1.6	11.5 ±0.9	11.7 ±1.3	52.0 ±6.0
Males, former athletes	41.4 ±1.8	51.9 ±2.5	10.5 ±0.3	11.3 ±0.3	61.8 ±4.1
Males, sedentary	39.7 ±1.2	54.7 ±1.3	11.2 ±0.4	11.5 ±0.5	57.3 ±3.5

Table 2. EchoCG parameters in former athletes and patients, M±m

LA – left atrium, LVEDD – left ventricular end-diastolic diameter, IVS – interventricular septum thickness, LVPW - left ventricular posterior wall thickness, EF - ejection fraction, %

Only 2/12 former athletes were smokers, 2 males had I degree AV-block, 2 – paroxysmal atrial fibrillation. Despite 2 former endurance trained athletes had elevated LVED diameter and 1 - reduced ejection fraction, bigger heart rate have been achieved at exercise testing (mean 150.0±12.9 vs 133.3±10.5 bpm; p=0.027). End-systolic LV volume was lesser (p=0.047).

7/12 former athletes diagnosed with unstable angina and none - with non-STEMI.

Conclusion. Physical activity in the youth may positively impact on clinical presentation of ACS in the middle-aged and older individuals. Promoting physical activity in all time span should be a primary aspect of cardiovascular disease prevention programs.

